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10/679,806

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P26,257-C USA

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EXAMINER

ASINOVSKY, OLGA

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/679,806	<b>Applicant(s)</b> LIU ET AL.	
	<b>Examiner</b> OLGA ASINOVSKY	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 4-12, 14, 15, 23 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-12, 14-15, 23, 26-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The Appeal Brief filed on 11/26/2007 with the Amendment to cancel claims 37-51, where such cancellation does not affect the scope of any other pending claims in the proceeding has been considered.

The amendment after final rejection filed on 11/26/2007 has been entered.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 4-12, 14-15, 23, 26-36 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 6-15 of copending Application No. 10/679,871 (as amended of 01/10/2007) in view of Parish et al U.S. Patent 5,891,942.

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Although the conflicting claims are not identical, they are not patentably distinct from each other because the chemical formulation of a curable adhesive composition in the present claims is readable in claims 1, 6-15 of copending Application No. 10/679,871. The difference is that claims 1, 6-15 of copending application No. 10/679,871 do not claim a reactive multifunctional acrylate.

Parish et al discloses a coating quick curable composition at room temperature having scratch resistance property. A composition is based on vinyl ester resins, vinyl toluene reactive diluent, a multifunctional acrylate component, a catalyst and an accelerating agent. A multifunctional acrylate component is used in the amount of about 1 wt.% to about 15 wt.%, column 2, lines 21-24 and 46-47. A multifunctional acrylate is used to increase the crosslink density of the coating, column 3, line 56.

It would have been obvious to one of ordinary skill in the art to employ a reactive multifunctional acrylate in the amount of 1 wt.% to about 15 wt.% by teaching in Parish invention into an adhesive composition in claims of copending Application No.10/679,871 for the purpose to increase the crosslinking density of the composition and thereby increase an adhesion property of the resulting adhesive composition to the presently claimed level of at least about 70 KN after one hour of curing at a temperature of 23 C.

This is a provisional obviousness-type double patenting rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-5, 9-12, 14-15, 23, 26 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0199 671 in view of Parish et al U.S. Patent 5,891,942. EP 0 199 671 (hereinafter EP'671) discloses hardenable=polymerizable polyester resin based preferably on epoxy acrylate resin being present in the amount of 9 to 28 wt%. Claimed limitation from 10 wt% to 25 wt% of polymerizable vinyl ester resin is overlapping in the content of the binder in EP'671. The adhesive composition also includes ethylenically unsaturated monomer(s) including monostyrene, divinylbenzene and allyl ester of acrylic acids, a curing agent such as peroxide compound and an accelerator including dialkylanilin, cobaltoctoat, cobaltnaphthenate and/or cobalt/amine accelerator. The adhesive composition is used for anchoring a bolt in building industry. Thus, the claimed pull out performance is inherent in an adhesive composition in EP'671. The reference further discloses on page 9, example 1, the inclusion of 4.3wt% of a novolak dimethacrylate, which reads over the claimed multifunctional acrylate. The claimed reactive multifunctional acrylate can be considered as a part of a polymerizable vinyl ester compound.

The EP'671 reference fails to disclose the claimed amount of multifunctional acrylate in the range of 5 wt.% to about 10 wt.%, since EP'671 discloses 4.3 wt.%.

Parish has been considered above.

Parish discloses a coating quick curable composition at room temperature. A composition comprises an unsaturated isophthalic polyester resin in the amount of from 30 to about 96 wt% and from about 1 to about 30 wt% of a multifunctional acrylate compound wherein a trifunctional acrylate compound is present in the amount of from about 1 to about 15 wt.%, column 1, lines 52-59 and column 2, lines 21-24. A multifunctional acrylate is employed to increase the crosslink density of the coating, column 3, line 56. The trifunctional acrylates are readable in the present claims 1, 4-5, 23, 26. The content of reactive trifunctional acrylate in Parish invention is overlapping the claimed amount of reactive multifunctional acrylate. A reactive diluent for the resin includes reactive vinyl toluene, column 3, line 27. The reactive vinyl toluene diluent is within the scope of an ethylenically unsaturated monomer for the present claims 1, 9-12, 30-33. The coating composition includes a catalyst=curing agent and an accelerating agent, column 5, lines 3 and 50-51. The coating composition has an adhesive properties, scratch resistance property and water resistance.

Both references disclose fast curable composition comprising a polymerizable vinyl ester compound and ethylenically unsaturated monomer(s), curing catalyst and accelerator=activator.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to employ a reactive multifunctional acrylate in the amount of 5 wt% to 10 wt% by teaching in Parish invention into an adhesive composition in EP'671 for the purposes

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to increase the crosslinking density of the composition and to improve adhesive property.

3. Claims 1, 4-7, 9-12, 14-15, 23, 26-28 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 199 671 in view of Nakamura et al U.S. Patent 6,489,396.

EP 0 199 671 (hereinafter EP'671) discloses hardenable=polymerizable polyester resin based preferably on epoxy acrylate resin being present in the amount of 9 to 28 wt%. Claimed limitation from 10 wt% to 25 wt% of polymerizable vinyl ester resin is overlapping in the content of the binder in EP'671. The adhesive composition also includes ethylenically unsaturated monomer(s) including monostyrene, divinylbenzene and allyl ester of acrylic acids, a curing agent such as peroxide compound and an accelerator including dialkylanilin, cobaltoctoat, cobaltnaphthenate and/or cobalt/amine accelerator. The adhesive composition is used for anchoring a bolt in building industry. Thus, the claimed pull out performance is inherent in an adhesive composition in EP'671. The reference further discloses on page 9, example 1, the inclusion of 4.3wt% of a novolak dimethacrylate, which reads over the claimed multifunctional acrylate. The claimed reactive multifunctional acrylate can be considered as a part of a polymerizable vinyl ester compound.

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The EP'671 reference fails to disclose the claimed amount of multifunctional acrylate in the range of 5 wt.% to about 10 wt.%, since EP'671 discloses 4.3 wt.%.

Nakamura discloses a (meth)acrylate ester-based resin composition which comprises a (meth)acrylate ester-based polymer (I) and a crosslinking agent (a) having at least two functional groups that are reactable with the reactive group of the polymer (I), claim 1 at column 48. The polymer (I) is the reaction product of epoxy group containing compound and an alkylcyclohexyl alkyl ester of (meth)acrylic acid as polymerizable unsaturated monomer (a), column 2, lines 38-45. The polymer (I) is present in the amount of 5 to about 90 wt.%, claim 4 at column 50. The claimed amount of a polymerizable vinyl ester compound is overlapped in the amount of polymer (I) in Nakamura invention. The adhesive composition comprises a polymer (I) and a plurality of polymerizable unsaturated monomers including polymerizable unsaturated monomer (b) and polymerizable unsaturated monomers (c), column 6, line 30 through column 8, line 12. The polymerizable unsaturated monomer (c) includes vinyltoluene, column 8, line 37, for the present claims 1, 9, 11-12, 30, 32-33; and another polymerizable multifunctional unsaturated monomers such as trimethylolpropane triacrylate and pentaerythritol tetraacrylate, column 9, lines 8-9, for the present claims 1, 4-7, 23, 26-28. The reactive multifunctional acrylate can be introduced into the (meth)acrylate ester-based polymer (I), column 9, lines 4, 8-9 and 56-67. The amount of each polymerizable unsaturated monomers is not especially limited, but in view of the properties of the polymer (I) the content of the polymerizable unsaturated monomer (c) is in the range of 0 to 94 wt.%,



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column 10, lines 32-40 and 50-53. Thus, the amount of reactive multifunctional acrylate is overlapping the claimed limitation, and the amount of said multifunctional acrylate is depending on the desired properties of the resin composition for desired application.

The multifunctional polymerizable unsaturated monomers having at least two functional groups have the advantage of providing crosslinking effect to the (meth)acrylate ester-based polymer, column 9, lines 56-66. The resulting (meth)acrylate ester-based resin composition has impact resistance hardness, water resistance, weather resistance, column 1, lines 60-65 and column 2, lines 1-5.

Both references disclose analogous utility of using epoxy acrylate resin composition comprising claimed polymerizable vinyl ester compound, ethylenically unsaturated monomer reactive with said resin and a reactive multifunctional acrylate.

It would have been obvious to one of ordinary skill in the art to combine the use of a multifunctional acrylate from Nakamura invention in the amount of 5 to 10 wt% with the teaching of EP'671 for the purposes to provide a crosslinking effect, water resistance and impact resistance or the resulting composition. One would add the reactive multifunctional unsaturated acrylate to perform copolymerization reaction as described in Nakamura invention wherein the content of a multifunctional acrylate is overlapping the claimed limitation.

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4. Claims 1, 4-12, 14-15, 23, 26-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hense et al. U.S. Patent 5,157,072 in view of Nakamura et al U.S. Patent 6,489,396.

Hense discloses curable unsaturated polyester in the amount of 5 to 95 wt.%, monoethylenically unsaturated monomer(s) including vinyltoluene, alkyl ester of (meth)acrylic acid referring to as a crosslinking agent, a peroxide curing agent and an accelerator. All components are readable in the present claims. An unsaturated polyester is obtained by a reaction of a compound carrying epoxy groups with unsaturated carboxylic groups, that is readable for being a polymerizable vinyl ester in the present claims. The polymerizable vinyl ester resin is present in the range of 5 to 95 wt.%. The claimed amount from 10 to 25 wt.% is overlapped in the range in the Hense invention.

It would have been obvious to one of ordinary skill in the art at the time of the present invention to use polymerizable unsaturated polyester obtained by the reaction of a compound carrying epoxy groups with unsaturated carboxylic group as a binder in Hense invention in the claimed limited amount of from 10 to 25 wt% for the purposes to control the flow behaviors/flow rate of the adhesive curable composition in Hense invention since the claimed content of the binder is teaching in Hense invention.

Hense discloses alkyl ester of (meth)acrylic acid referring to as crosslinking agents, column 1, lines 11-16. The difference is that reference does not name said crosslinking agent as a multifunctional acrylate.

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Nakamura has been discussed in the paragraph 3 above.

Nakamura discloses adhesive curable composition including (meth)acrylate ester-based resin having epoxy group in the range of 5 to 70 wt%, column 24, lines 25-30 and column 25, line 22; a polymerizable unsaturated monomer including vinyltoluene, column 8, lines 13, 37; a multifunctional acrylate such as pentaerythritol tetraacrylate referring as a crosslinking agent which can be present in the amount of 1.0 to 40.0 wt%, column 14, line 41 and column 9, line 8; a curing agent such as a peroxide, column 12, line 43.

It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute a crosslinking agent in Hense invention with a tetrafunctional acrylate by teaching in Nakamura invention for being a claimed multifunctional acrylate since a multifunctional acrylate works within the same expectation for obtaining adequate property as a crosslinking agent and since there is no showing of unexpected results derived from said use.

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References in both cases 10/679,806 and 10/679,871 have been considered. The closest references to Yonetani, Goto, Parish are cited as references in both cases. Reference EP 0199 671 is cited in 10/679,871 application. Application 10/679,871 is ODP rejection for the present application 10/679,806. The closest reference to EP'0 199 671 has been considered in both applications.

The search has been updated. New reference to Gebauer et al Patent 4,518,283 is cited of interest. Gebauer discloses unsaturated polyester in the amount of 15 to 35 wt% for making hardenable synthetic resin composition using for securing purposes in a building industry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLGA ASINOVSKY whose telephone number is (571)272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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O.A.  
April 11, 2008

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796